AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A non-transitory computer-readable medium holding instructions executable in a computing device, the instructions when executed causing at least one computing device to:

generate a result from executing a block diagram model of a biological process by performing a simulation of the block diagram model with a simulation engine;

~~store a simulation context of the simulation by registering~~ register an area of memory that constitutes [[the]] a simulation context for a subsystem in the block diagram model, the subsystem associated with a first memory layout, the simulation context comprising one or more values for one or more attributes, the one or more values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

gather data directly from an in situ experimental device on which an ongoing in situ experiment of the biological process is conducted;

compare the generated result to the data gathered from the experimental device using an analysis environment that is in communication with the simulation engine; [[and]]

modify the model of the biological process based on the comparison to correct the model of the biological process, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

use the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

2. (Previously Presented) The medium of claim 1 wherein the analysis environment outputs results of an analysis performed by the analysis environment.

3. (Previously Presented) The medium of claim 1 wherein the instructions when executed further cause at least one computing device to:

display at least one of the result generated by the simulation engine or the data gathered from the experimental device.

4. (Previously Presented) The medium of claim 1, wherein the instructions when executed further cause at least one computing device to:

determine a difference between the result and the data gathered from the experimental device; and

generate an event signal when the difference between the result and the data gathered from the experimental device exceeds a predetermined threshold.

5. (Previously Presented) The medium of claim 1 further comprising one or more instructions for constructing the model of the biological process with a modeling environment.

6. (Previously Presented) The medium of claim 5 wherein the modeling environment includes a graphical user interface for accepting at least one of user commands or data to construct the model of the biological process.

7. (Previously Presented) The medium of claim 5 wherein the analysis environment is in communication with the modeling environment.

8. (Previously Presented) The medium of claim 7 wherein the analysis environment transmits to the modeling environment the data gathered from the experimental device.

9. (Previously Presented) The medium of claim 8 wherein the modeling environment uses the transmitted data to refine the model of the biological process.

10. (Previously Presented) The medium of claim 1 wherein the analysis environment gathers data from a microarray.

11. (Previously Presented) The medium of claim 1, further comprising one or more instructions for gathering data from a gene chip.

12. (Currently Amended) A method for modifying a model of a biological process, the method comprising:

accessing, using a computer, a block diagram model of the biological process;

generating, using the computer, a result from an execution of the model of the biological process by performing a simulation of the block diagram model;

~~storing, using the computer, a simulation context of the simulation by~~ registering an area of memory that constitutes [[the]] a simulation context for a subsystem in the block diagram model, the subsystem associated with a first memory layout, wherein the simulation context comprises values for attributes, the values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

gathering, using the computer, data directly from an in situ experimental device on which an ongoing in situ experiment is conducted; [[and]]

comparing, using the computer, the generated result to the data gathered from the ongoing in situ experiment;

modifying, using the computer, the model of the biological process based on the comparison to correct the model of the biological process, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

using the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

13. (Previously Presented) The method of claim 12 further comprising displaying, using the computer, at least one of the generated result or the data gathered from the experimental device.

14. (Previously Presented) The method of claim 13 wherein displaying comprises graphically displaying, using the computer, the at least one of the generated result or the data gathered from the experimental device.

15. (Previously Presented) The method of claim 13 further comprising:

determining, using the computer, a difference between the result and the data gathered from the experimental device; and

generating, using the computer, an event signal when the difference between the generated result and the gathered data exceeds a predetermined threshold.

16. (Previously Presented) The method of claim 12 further comprising accepting, using the computer, at least one of user commands or data to construct the model of the biological process.

17. (Previously Presented) The method of claim 16 wherein the at least one of user commands or data is accepted via a graphical user interface.

18. (Previously Presented) The method of claim 16 further comprising transmitting, using the computer, the gathered data to a modeling environment configured to model the biological process.

19. (Previously Presented) The method of claim 18 further comprising generating, using the computer, a refined model of the biological process using the transmitted data.

20. (Previously Presented) The method of claim 12 wherein conducting, using the computer, further comprises conducting the in situ experiment using a microarray.

21. (Previously Presented) The method of claim 12 wherein conducting further comprises conducting, using the computer, the in situ experiment using a gene chip.

22. (Currently Amended) An apparatus comprising:

means for accessing a block diagram model of a biological process;

means for generating a result from an execution of the model of the biological process by performing a simulation of the model of the biological process;

means for ~~storing a simulation context of the simulation by~~ registering an area of memory that constitutes [[the]] a simulation context for a subsystem in the block diagram model, the subsystem associated with a first memory layout, wherein the simulation context comprises values for attributes, the values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

means for gathering data directly from an in situ experimental device on which an ongoing in situ experiment of the biological process is conducted;

means for comparing the generated result to the data gathered from the experimental device; [[and]]

means for modifying the model of the biological process based on the comparison to correct the model of the biological process, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

means for using the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

23. (Previously Presented) The apparatus of claim 22 further comprising means for displaying at least one of the result or the data gathered from the experimental device.

24. (Previously Presented) The apparatus of claim 22 further comprising:

means for determining a difference between the result and the data gathered from the experimental device; and

means for triggering an alarm when the difference between the generated result and the gathered data exceeds a predetermined threshold.

25. (Previously Presented) The apparatus of claim 22 further comprising means for accepting at least one of user commands or data to construct the model of the biological process.

26. (Previously Presented) The apparatus of claim 22 wherein the at least one of user commands or data is accepted via a graphical user interface.

27. (Previously Presented) The apparatus of claim 22 further comprising means for generating a refined model of the biological process using the data gathered from the experimental device.

28. (Currently Amended) A non-transitory computer-readable medium holding instructions executable in a computing device, the instructions when executed causing at least one computing device to:

generate a result from executing a block diagram model of a biological process by performing a simulation of the block diagram model;

~~store a simulation context of the simulation by registering~~register an area of a memory that constitutes [[the]] a simulation context for a subsystem in the block diagram model, the subsystem associated with a first memory layout, wherein the simulation context comprises values for attributes, the values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

gather data directly from an in situ experimental device on which an ongoing in situ experiment of the biological process is conducted;

compare the result to the data gathered from the experimental device; [[and]]

modify the model of the biological process based on the comparison, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

use the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

29. (Previously Presented) The medium of claim 28 wherein the instructions when executed further cause at least one computing device to:

display at least one of the generated result or the data gathered from the experimental device.

30. (Previously Presented) The medium of claim 29 wherein the at least one of the generated result or the data gathered from the experimental device is displayed in a graphical display.

31. (Previously Presented) The medium of claim 28 wherein the instructions when executed further cause at least one computing device to trigger an alarm when a difference between the generated result and the data gathered from the experimental device exceeds a predetermined threshold.

32. (Previously Presented) The medium of claim 28 wherein the instructions when executed further cause at least one computing device to construct a model of the biological process with a modeling environment.

33. (Previously Presented) The medium of claim 32 wherein the modeling environment includes a graphical user interface and wherein the instructions when executed further cause at least one computing device to accept at least one of user commands or data to construct the model of the biological process via the graphical user interface.

34. (Previously Presented) The medium of claim 32 wherein the comparing is performed in an analysis environment and the analysis environment is in communication with the modeling environment.

35. (Previously Presented) The medium of claim 34 wherein the analysis environment transmits to the modeling environment the data gathered from the experimental device.

36. (Previously Presented) The medium of claim 35 wherein the modeling environment uses the transmitted data to refine the generated model of the biological process.

37. (Currently Amended) A method for modifying a model of a chemical reaction, the method comprising:

accessing, by a simulation engine, a block diagram model of the chemical reaction;

generating, by the simulation engine, a result from executing the model of the chemical reaction by performing a simulation of the block diagram model;

~~storing a simulation context of the simulation by~~ registering an area of a memory that constitutes [[the]] a simulation context for a subsystem in the block diagram model, the subsystem associated with a first memory layout, wherein the simulation context comprises values for attributes, the values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

gathering data relating to an ongoing in situ experiment directly from an in situ experimental device on which the in situ experiment is being conducted;

comparing, by an analysis environment, the generated result to the data gathered from the in situ experimental device; [[and]]

modifying the model of the chemical reaction based on the data relating to the ongoing experiment to correct the model of the chemical reaction, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

using the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

38. (Original) The method of claim 37 further comprising displaying, by the analysis environment, at least one of the result generated by the simulation engine or the data gathered from the experimental device.

39. (Original) The method of claim 38 wherein displaying comprises graphically displaying at least one of the result generated by the simulation engine or the data gathered from the experimental device.

40. (Original) The method of claim 37 further comprising:

determining a difference between the generated result and the data gathered from the experimental device; and

triggering an alarm when the difference between the generated result and the gathered data exceeds a predetermined threshold.

41. (Original) The method of claim 37 further comprising accepting, via a modeling environment, at least one of user commands or data to construct the model of the chemical reaction.

42. (Original) The method of claim 41 wherein the modeling environment accepts the at least one of user commands or data via a graphical user interface.

43. (Original) The method of claim 41 further comprising transmitting the gathered data to the modeling environment.

44. (Original) The method of claim 43 further comprising generating, by the modeling environment, a refined model of the chemical reaction using the transmitted data.

45. (Currently Amended) A non-transitory computer-readable medium holding instructions executable in a computing device, the instructions comprising one or more instructions for:

accessing a block diagram model of the chemical reaction;

generating a result from executing the model of the chemical reaction by conducting a simulation of the block diagram model;

~~storing a simulation context of the simulation by~~ registering an area of a memory that constitutes the simulation context for a subsystem in eth block diagram model, the subsystem associated with a first memory layout, wherein the simulation context comprises values for attributes, the values being established during the simulation of the block diagram model~~, the storing making the simulation context available after the simulation finishes so that the simulation may be restored to a state consistent with the simulation context~~;

gathering data relating to an ongoing in situ experiment of the chemical reaction directly from an in situ experimental device on which the ongoing in situ experiment is conducted;

comparing the generated result to the data gathered from the experimental device; [[and]]

modifying the model of the chemical reaction based on the data relating to the ongoing experiment to correct the model of the chemical reaction, wherein modifying the model affects a memory layout of the subsystem to result in a second memory layout; and

using the stored simulation context to restore the simulation to a state consistent with the simulation context after the simulation finishes.

46. (Original) The computer-readable medium of claim 45 further comprising one or more instructions for displaying at least one of the generated result or the data gathered from the experimental device.

47. (Original) The computer-readable medium of claim 45 further comprising one or more instructions for:

determining a difference between the result and the data gathered from the experimental device; and

triggering an alarm when the difference between the generated result and the gathered data exceeds a predetermined threshold.

48. (Original) The computer-readable medium of claim 45 further comprising one or more instructions for accepting at least one of user commands or data to construct the model of the chemical reaction.

49. (Original) The computer-readable medium of claim 45 further comprising one or more instructions for accepting at least one of user commands or data via a graphical user interface to construct the model of the chemical reaction.

50. (Original) The computer-readable medium of claim 45 further comprising one or more instructions for generating a refined model of the chemical reaction using the data gathered from the experimental device.

51. (Canceled)